

REMARKS

Claims 1-9 are pending in the subject patent application. Claims 1 and 4 have been amended. Applicant respectfully requests consideration of the claims in view of the amendments made herein and the remarks provided below.

Claim Objection – Claim 4

In the Office Action, Claim 4 was objected to under 37 C.F.R. § 1.75(c) as being of improper dependent form. Specifically, Claim 4 was objected to for being improperly dependent on itself. In response, Applicant has amended Claim 4 to remove the typographical error. Claim 4 is now shown to properly depends from Claim 3.

Claim Rejections – 35 U.S.C. § 103, Claims 1-7

In the Office Action, Claims 1-7 were rejected under 35 U.S.C. § 103(a) for allegedly being obvious over U.S. Patent No. 6,326,826 to Lee et al. (hereinafter referred to as “Lee et al.”) in view of U.S. Patent No. 5,084,669 to Dent (hereinafter referred to as “Dent”). For the following reasons Applicant respectfully disagrees.

Lee et al. discloses a delay-locked loop (DLL) that generates a set of multiphase clocks whose delays are locked to an input reference clock. The DLL includes a plurality of delay elements, which are adapted to incrementally delay the input reference clock in order to generate the set of multiphase clocks, frequency detector logic, which is adapted to count the number of rising edges occurring in the set of multiphase clocks in one input of the reference clock, and a loop filter, which is adapted to generate a control signal to

adjust the delay amount of each delay element when the counted number of rising edges is different from a predetermined number.

Dent discloses an electronic circuit that generates, at specified time intervals, digital values representing the instantaneous phase angle of an AC signal or pulse train relative to a reference clock.

Section 2143 of the M.P.E.P. directs that in order to make a *prima facie* case of obviousness the references (or references when combined) must “teach or suggest *all* of the claim limitations” (emphasis supplied). As explained in detail below, Lee et al. in view of Dent fails to teach or suggest many of the characteristics of Claims 1-8. Accordingly, Applicant believes that Lee et al. as modified by Dent cannot be properly maintained to support the § 103 rejections of Claims 1-7 of the present application.

Independent Claim 1 of the present invention is distinguishable from Lee et al. in view of Dent in various respects. First, as acknowledged at the top of page 5 of the Office Action, Lee et al. does not teach “forming from [an] unknown clock signal a derived clock signal”. The only clock from which other signals are derived in Lee et al. is a reference clock REF-CK. By definition, a reference clock has known characteristics. So there is no way the reference clock in Lee et al. could be construed to be an “unknown clock signal”. For at least this first reason, therefore, Applicant respectfully believes that the § 103 rejections of independent Claims 1 and 5 cannot be properly maintained.

Second, Dent fails to teach or suggest forming a “derived signal” from an “unknown clock signal”, and neither Dent nor Lee et al. provide any suggestion or motivation as to how the teachings of Dent might lead to a method of sampling that forms

a derived signal from an unknown signal. For at least these second reasons, therefore, Applicant respectfully believes that the § 103 rejection of independent Claim 1 cannot be properly maintained. Substantially the same reasons are applicable to the rejection of independent Claim 5, which includes a similar characteristic: “circuitry for deriving from an the unknown signal a derived signal.”

Third, Lee et al., whether or not modified by Dent, does not teach “forming a sequence of multiple delayed versions of the derived clock signal”. Lee et al. does generate multiple delayed clock signals CK[1:7]. However, these multiple delayed clocks are not multiple versions of a “derived clock signal”, which Claim 1 of the present invention requires to be formed from an “unknown clock”. In fact, the multiple delayed clock signals CK[1:7] are formed from a known reference clock REF_CK, which is not a derived signal formed from an unknown clock signal. Moreover, there is nothing in either Lee et al. or Dent providing any suggestion or motivation to replace the known reference clock with an unknown reference clock signal. Even if such a suggestion or motivation were present, such a proposed modification would both change the principle of operation and render the Lee et al. apparatus unsatisfactory for its intended purpose – either of which is prohibited in making an obviousness rejection. (*See M.P.E.P. § 2143.01*). For at least these third reasons, therefore, Applicant respectfully believes that the § 103 rejection of independent Claim 1 cannot be properly maintained. Substantially the same reasons are applicable to the rejection of independent Claim 5, which includes a similar characteristic: “a delay chain of logic elements, coupled to the derived clock

signal and the unknown clock signal, for forming a sequence of multiple delayed versions of the derived clock signal”.

Fourth, Lee et al., whether or not modified by Dent, does not teach or suggest, for each delayed version of the derived clock, “sampling the delayed version of the derived clock signal” for “each delayed version of derived clock signal.” As explained above, Lee et al. does not have a “derived signal” or “multiple delayed versions of the derived clock signal”. Lee et al. only discloses forming multiple delayed clock signals CK[1:7] from a known reference clock signal REF_CK. Dent is directed only at determining the phase angle of a phase angle. It does not involve sampling multiple delayed versions of a signal formed from a signal that is formed from an unknown signal. Moreover, there is no suggestion or motivation as to how Lee et al. might be used to modify Dent (or vice versa) to obtain this aspect of the subject matter claimed in Claim 1. For at least these fourth reasons, therefore, Applicant respectfully believes that the § 103 rejection of independent Claim 1 cannot be properly maintained. Substantially the same reasons are applicable to the rejection of independent Claim 5, which includes a similar characteristic: “multiple sampling chains of logic elements, each coupled to one of the multiple delayed versions of the derived clock signal and the know clock signal”.

Fifth, but not necessarily last, Applicant respectfully believes that Lee et al. is non-analogous art, and cannot properly form the basis of the § 103 rejections set forth in the Office Action. Section 2141.01(a) of the M.P.E.P. directs that “[i]n order to rely on a reference as a basis for rejection of an applicant’s invention, the reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the

particular problem with which the inventor was concerned.” (quoting *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). Here, Lee et al. is neither within Applicant’s field of endeavor nor reasonably pertinent to the problems addressed by the presently claimed invention. Lee et al. is directed at a delayed-lock loop that can operate over a wide frequency range. It has nothing to do with sampling an unknown clock with a known clock signal. Further, Lee et al. would not be considered by one of ordinary skill in the art as being reasonably pertinent to the problems faced by the inventor of the present invention. Accordingly, Applicant respectfully believes that Lee et al. is non-analogous art and cannot be properly maintained as a reference to support the rejections of independent Claims 1 or 5.

Claim Rejection – 35 U.S.C. § 103, Claim 8

In the Office Action, Claim 8 was also rejected under 35 U.S.C. § 103(a) for allegedly being obvious over Lee et al. in view of Dent. For the following reasons Applicant respectfully disagrees.

Among other elements, independent Claim 8 includes “applying to the digital circuit an alias value indicated an expected frequency range of the *unknown* clock signal” (emphasis supplied). In the Office Action, it is asserted that Lee et al. discloses an alias value “indicating an expected number of rising edges in one period of the known clock signal (frequency range of the clock signal)”. Irrespective of the accuracy of this statement, an alias value indicating an expected number of rising edges of a “known” clock signal does not correspond to the alias value recited in Claim 8, which is of “the

unknown clock signal". Accordingly, Lee et al., whether or not modified by Dent, does not render the subject matter claimed in independent Claim 8 obvious. Applicant requests, therefore, that the 103 rejection of independent Claim 8 be withdrawn.

The remaining claims rejected as allegedly being obvious over Lee et al. in view of Dent are Claims 2-4, 6 and 7, which each depend from one of independent Claims 1, 5 or 8. Above reasons were provided as to why independent Claims 1, 5 and 8 are believed to be allowable over Lee et al. in view of Dent. Substantially the same reasons apply to dependent Claims 2-4, 6 and 7. In other words, dependent Claims 2-4, 6 and 7 derive patentability for depending from what appear to be allowable base claims. Applicant requests, therefore, that the § 103 rejections of dependent Claims 2-4, 6 and 7 be withdrawn.

Claim Rejection – 35 U.S.C. § 103(a), Claim 9

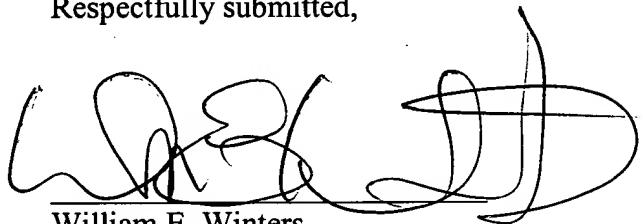
In the Office Action independent Claim 9 was rejected for allegedly being obvious over Lee et al. in view of Dent, and further in view of MacWilliams. For the following reasons Applicant respectfully disagrees. Among other claim elements, Claim 9 includes "a second logic section for receiving an alias value indicating an expected frequency range of the unknown clock signal...." Lee et al. in view of Dent, whether or not modified or combined with MacWilliams, does not teach this aspect of Claim 9. For at least this reason, therefore, Claim 9 is allowable over the cited prior art. Applicant requests, therefore, that the § 103 rejection of Claim 9 be withdrawn.

CONCLUSION

For at least the foregoing reasons, Applicant believes all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner has any further questions or comments concerning the amendments made herein, he is encouraged to telephone the undersigned at 408-282-1857.

Respectfully submitted,



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Amendments to the Drawings:

The attached replacement drawing sheets include amendments to Figures 1-4 of the original drawing sheets. The replacement sheets replace the original drawings sheets numbered 1/5, 2/5 and 3/5. As directed by the examiner, a "Prior Art" caption has been added to Figures 1-3 on drawing sheets 1/5 and 2/5. Additionally, an amendment to Figure 4 has been made so that the "unknown clock signal, F_X" is shown to clock flip flop 401a in logic section 401 and flip flops 405a of logic sections 5.1-5.8. No new matter is entered by the drawing changes. In addition to the replacement sheets, annotated sheets showing changes in red are attached to this Amendment.

Attachments: Replacement Sheets
 Annotated Sheets Showing Changes

ANNOTATED MARKED-UP DRAWINGS

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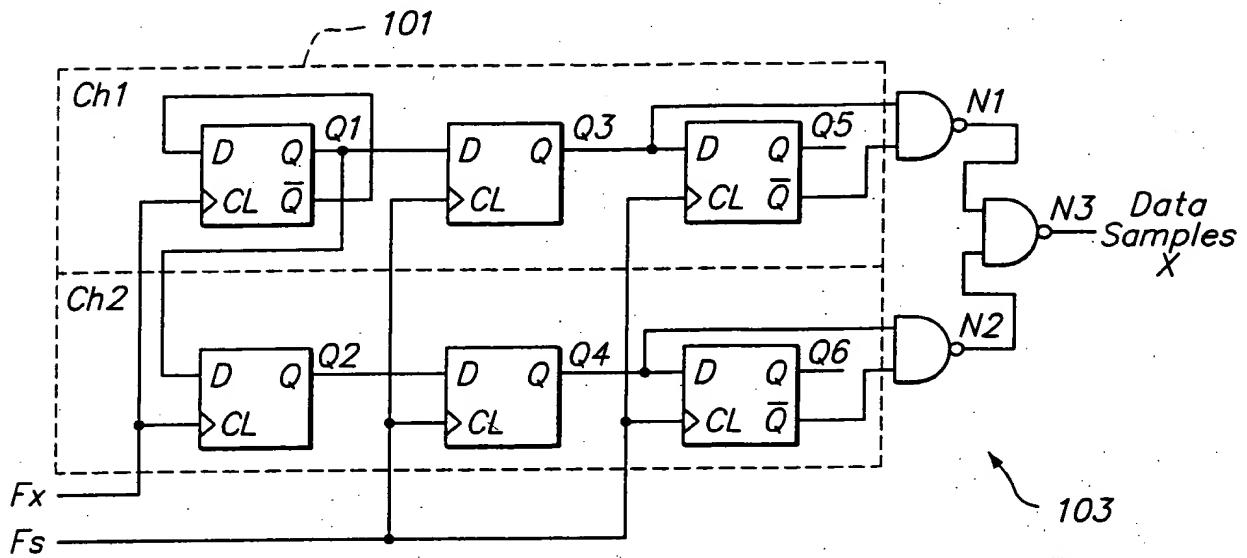


FIG. 1 (Prior Art)

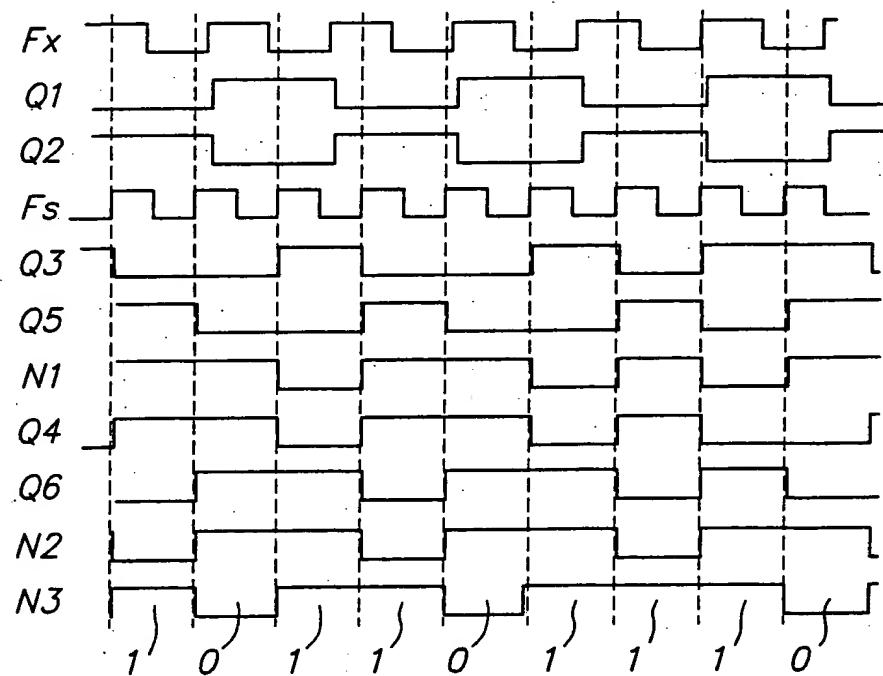


FIG. 2 (Prior Art)

ANNOTATED MARKED-UP DRAWINGS

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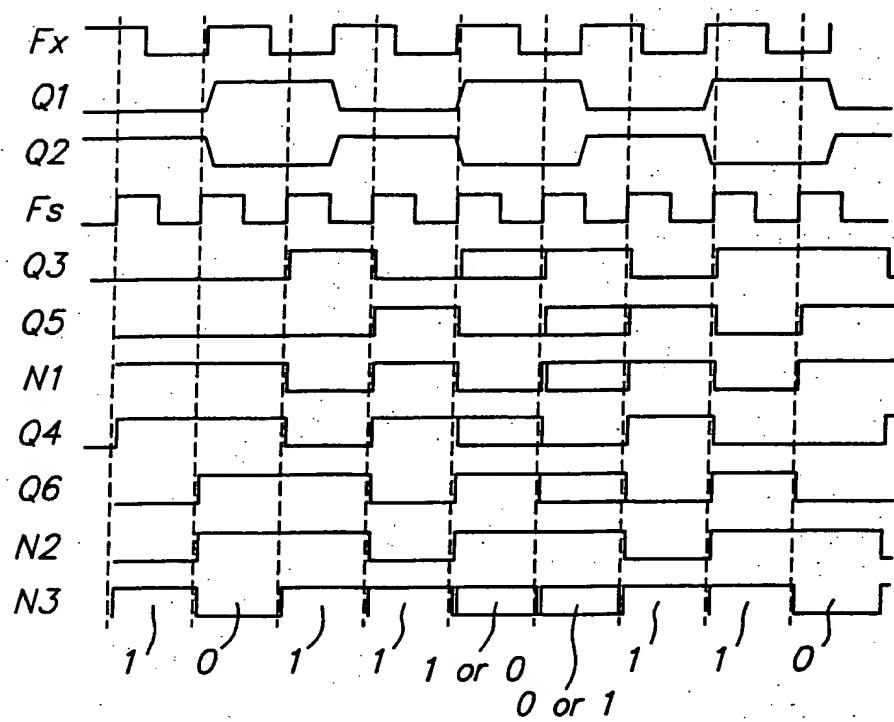


FIG. 3 (Priority)

ANNOTATED MARKED-UP DRAWINGS

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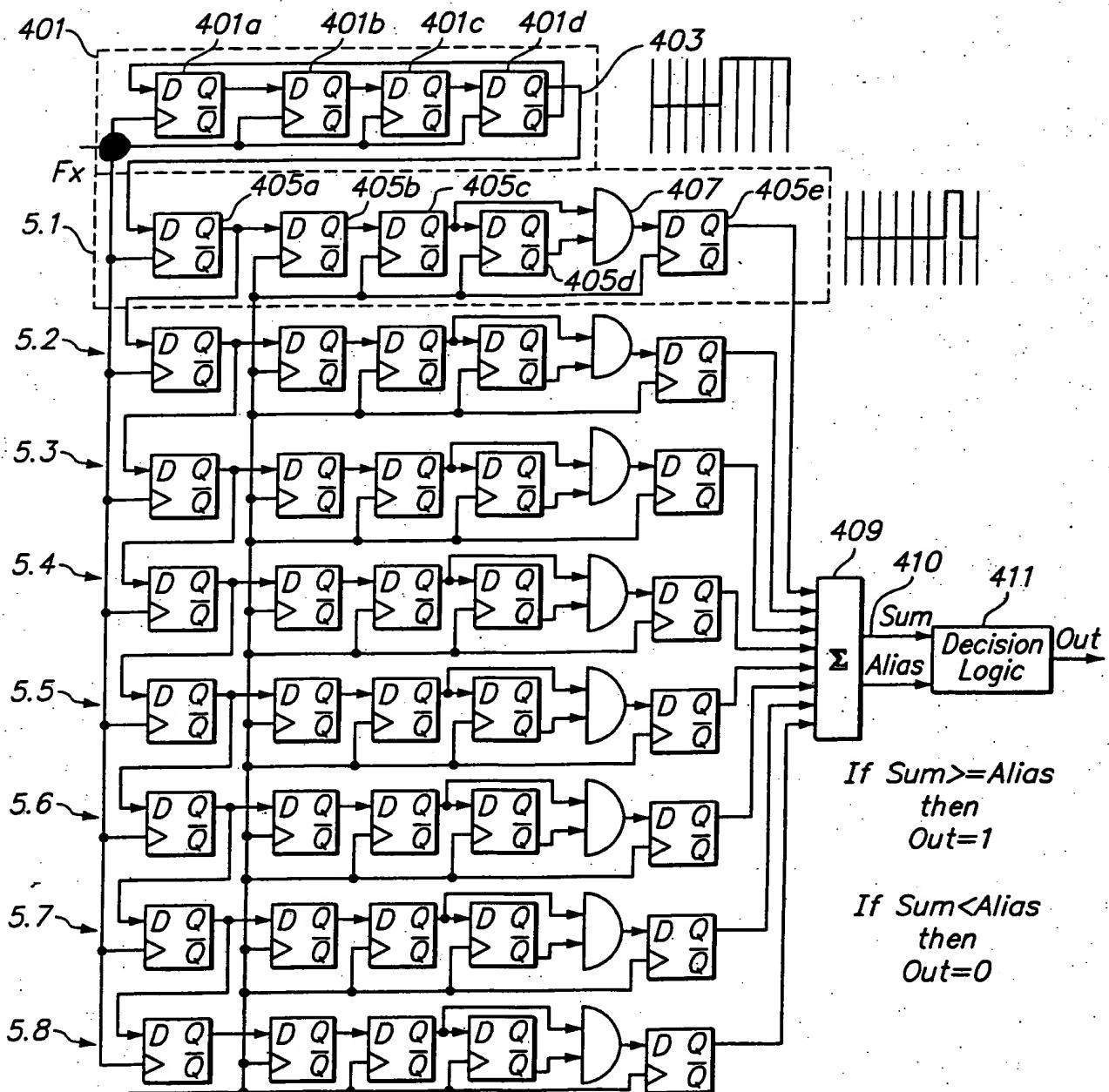


FIG. 4